

Applying mastery TARGET structures to Cooperative Learning in PE

Abstract

The purpose of this article is to critically apply the mastery TARGET structures (task, authority, recognition, grouping, evaluation and time) to the Cooperative Learning model in Physical Education. The premise is that the TARGET structures are highly applicable to the Cooperative Learning model and that combining both approaches will optimize student motivation in PE. The structure of the article follows the TARGET acronym and identifies how implementing each of the mastery TARGET structures could potentially enhance the motivational climate associated with the Cooperative Learning model. In doing so, the article, firstly introduces each of the TARGET structures and then critically applies them to the Cooperative Learning model in a PE context. The key elements of Cooperative Learning; positive interdependence, individual accountability, face-face interaction, interpersonal and small group skills, and group processing have close links with a number of the TARGET structures and these are critically explored. It is anticipated that this article could be used to further enrich the Cooperative Learning model and to open up new avenues of research that combine TARGET and Cooperative Learning.

Introduction

The purpose of this article is to critically apply the mastery TARGET structures (task, authority, recognition, grouping, evaluation and time) (Epstein, 1988; Ames 1992a) to the Cooperative Learning model (Dyson & Casey, 2012) in Physical Education. TARGET has traditionally been considered as a set of pedagogic structures that foster a mastery motivational climate (Ames, 1992a). Such a climate emphasises comparing one's present level of performance with one's prior achievements and encouraging learners to be the 'best that they can be' (Ames, 1984). This is in contrast to an ego climate where the emphasis is on 'being the best' in comparison to others (Ames, 1992a). A mastery climate is consistent with an individualistic reward structure, whereas an ego climate is based on a competitive reward structure (Ames, 1984). Ames (1992b) suggests that the TARGET structures (see Table 1.) can be manipulated to foster a mastery motivational climate by emphasising self-referenced, differentiated and varied Tasks, a sense of individual Authority, the Recognition of effort and individual progress, heterogeneous and cooperative Grouping, individualised formative Evaluation/assessment and flexible Time to learn. The adaptive effects of a mastery TARGET interventions on students' motivation in PE are well established and include higher levels of perceived competence, satisfaction and enjoyment, less boredom, a stronger preference for engaging in more challenging tasks, higher mastery goal orientations and a stronger belief that success is the result of effort (Solmon, 1996; Morgan & Carpenter, 2002; Digelidis, Papaioannou, Laparidis, & Christodoulidis, 2004).

The Cooperative Learning model, which is consistent with a cooperative reward structure, emphasising positive interdependence of group members (Ames, 1984), has not previously been associated with the TARGET structures in a Physical

Education (PE) or Sport context. However, Ames (1992b) contends that the success of cooperative learning models in enhancing students learning and feelings of self-esteem may be a function of the attention given to the TARGET structures. Indeed, according to Ames (1992b, p343-344), 'the guidelines and parameters for cooperative learning are typically quite compatible with the TARGET-defined strategies and with a mastery goal orientation in general'. Further, Standage, Duda and Pensgaard (2005) concluded that cooperative, coupled with task involving (mastery) structures (Ames, 1992b) to be most motivationally adaptive when comparing the effects of different conditions on psychological well-being of participants in physical tasks. Therefore, this paper argues that the TARGET structures are as applicable to the cooperative learning model, as they are to the mastery (individualistic) model and that combining both approaches will optimize student motivation in PE. Furthermore, it is argued that TARGET is essentially a set of good practice principles which, if appropriately applied, can enrich and further develop the Cooperative Learning model and create rich opportunities for new avenues of research.

The structure of this article follows the TARGET acronym and identifies how implementing each of the mastery TARGET structures could potentially enhance the motivational climate associated with the Cooperative Learning model. In doing so, the article, firstly introduces each of the TARGET structures and then critically applies them to the Cooperative Learning model in a PE context. The key elements of Cooperative Learning; positive interdependence, individual accountability, face-face interaction, interpersonal and small group skills, and group processing (Dyson & Casey, 2012) have close links with a number of the TARGET structures. These links are critically explored in the following sections beginning with the Task structure.

Task

The two most important facets of a mastery Task structure are emphasising individual self-referenced goals and differentiating tasks for inclusion and optimum learning (Ames, 1992a). Whilst, at first glance, the individualisation of the tasks would seem to be slightly at odds with a group based Cooperative Learning model, the 'positive interdependence' and 'individual accountability' elements of Cooperative Learning are totally consistent with such a mastery focus. Setting group goals for academic, social and psychomotor development is an essential aspect of Cooperative Learning (Dyson & Casey, 2012). Despite the group focus, it is in the interest of the group for every individual member to succeed at their own level to maximise the groups' potential (Johnson & Johnson, 2014). The differentiation of tasks for individual progress and learning, coupled with the students being accountable for their own personalised learning goals are, therefore, two elements of a mastery Task structure (Ames, 1992a) that are directly applicable to the Cooperative Learning model. The range of abilities in a heterogeneous group of PE students, however, makes this a difficult challenge to achieve. Students need to have the maturity and range of pedagogic practices to accept and include different academic, psychomotor and social ability levels in group work and to be able to differentiate the tasks that they use to challenge all levels of learning. In reality, this would probably require a significant input from the PE teacher to facilitate such a mastery and inclusive learning environment and to ensure 'positive interdependence'. Indeed, this would challenge the most able and experienced PE practitioners themselves, let alone the students who may be responsible for encouraging individual learning and progress to maximise the potential of the group. Without the teacher's facilitation, students may not have sufficient knowledge or

experience to set appropriate goals to challenge their own and others' learning effectively. In reality, this complex process is more likely to be successful when the learning is 'scaffolded' by a more knowledgeable other, i.e., the teacher (Vygotsky, 1978). This emphasises the need for shared goal setting between students and teachers (Jones & Standage, 2006) and the setting of appropriate learning tasks for a range of different abilities.

The other important aspect of the Task structure is the design, variety and novelty of the learning activities (Ames, 1992a). Whilst variety and novelty are important for student motivation (Cecchini, Fernando Riez, & Mendez-Gimenez, 2014), repetition and the application of sound skill acquisition principles are also important in developing practical learning (McMorris, 2015). A balance should, therefore, be struck between innovative, varied and novel tasks and the repetition of key learning patterns in promoting effective cooperative group learning.

Authority

Cooperative Learning in PE gives students the opportunity for responsibility and shared leadership in teaching motor skills, tactics, or any other PE content (Dyson & Casey, 2012). This is entirely consistent with Ames' (1992a) description of a mastery Authority structure which emphasises student leadership roles, responsibilities and decision making opportunities. The 'face to face' interaction, promoted as a key element in Cooperative Learning, also encourages student autonomy in group decision making, taking responsibility, giving and receiving peer feedback and encouraging each other (Dyson & Casey, 2012).

Cohen (1994) found that students made the greatest gains in learning when teachers delegated responsibility so that they could talk and work together. In Cooperative Learning, students can be performers, recorders, observers, presenters,

timers, leaders, and collectors (Dyson & Grineski, 2001). However, providing participants with greater Authority weakens the practitioners control over decisions for which he/she is held accountable, sometimes referred to as 'social irony' (Jones, Bailey & Thompson, 2013). Therefore, PE teachers need to be aware that ultimately, they have responsibility for the learning environment in their lessons. They also need to be aware that some students may not have the 'emotional intelligence' to be inclusive and that there is a risk in allowing too much Authority within groups. It could be argued, therefore, that a teacher who cares about the students' personal, social and emotional development has to maintain a level of control in PE lessons in order to create the most effective learning environment. A perceptive and caring PE teacher probably wouldn't, for example, expose under an under-confident student who lacks leadership qualities and has a low social status within the group, to a group leadership position without putting systems into place that provide a high level of support for that student. The Authority structure is, therefore, rife with intricacies and difficulties in the PE settings and it is not simply a case of providing all students with maximum autonomy at all times. However, there is strong evidence that an autonomous mastery environment is worth striving for in Cooperative Learning (Dyson & Casey, 2012), provided that it is well supported and facilitated by the teacher.

There are two clusters of teaching styles in Mosston and Ashworth's Spectrum (2002); the Reproductive cluster where the learners reproduce information presented by the teacher/coach, and the Productive cluster, where the learners are more active in producing their own outcomes thus promoting greater student Authority. Research by Morgan, Kingston and Sproule (2005) showed that more 'pupil-centred' Spectrum styles, including Guided Discovery and Reciprocal, resulted

in more mastery focused TARGET behaviours and greater student motivation than the more traditional teacher centred Command/Practice style of teaching. Although the Spectrum promotes a 'non versus' perspective, where no one teaching style is considered to be superior to any other (Mosston & Ashworth, 2002), the more 'student centred' Spectrum styles, particularly those from the Productive cluster would seem to lend themselves well to promoting student Authority within a Cooperative Learning model. Future research that investigates the use of different Spectrum styles in Cooperative Learning would be an interesting avenue to explore.

Recognition

A mastery Recognition structure promotes individualised recognition and rewards based on self-referenced progress. In the context of Cooperative Learning, the self-referenced element could be considered as 'group-referenced', where the emphasis is on improving the group's learning and performance. This group improvement, however, can be identified in different ways. Group tasks can be devised with the intention of competing against other groups (inter-group competition), thus potentially promoting a competitive (ego-involving) group reward structure. On the other hand, groups can compete against their own previous best performances to try and improve, without inter-group competition (mastery-involving). These two different types of reward structures may put different pressures on the 'interdependence skills' of the group in Cooperative Learning situations and potentially result in different affect experienced by high and low achievers within the group. Group failure to win, or improve their overall performance would be very revealing in these different situations and would provide the teacher with a clear indication of the 'positive interdependence skills' and 'individual accountability' of the group members. For example, do the lower achieving students get blamed for the failure of the group and

is this different under more 'ego' or 'mastery' involving recognition and reward conditions?

Ames (1981), found that group success in cooperative settings, with pupils in 5th and 6th grade students on novel puzzle tasks, enhanced the self-evaluations of low performing students; but group failure depressed the affect of both high and low achievers. Ames (1981) also suggested that cooperative reward structures lead to perceptions of equality and minimize perceptions of individual differences in performance. A meta-analysis by Johnson, Maruyama, Johnson, Nelson, and Skon (1981), revealed that cooperation without inter-group competition (mastery-involving) was more effective than cooperation with inter-group competition (ego-involving). However, Cotton and Cooke (1982) dispute these claims and suggest that they are not justified or supported in Johnson et al's (1981) meta-analysis. This type of research would be interesting in a PE context, where the 'positive interdependence' (Dyson & Casey, 2012) of the group members would be put under different pressures in the 'ego' (inter-group competition) and 'mastery' (without inter-group competition) involving situations.

Slavin (1983), described individual accountability as where the best learning efforts of all group members is necessary for group success and the performance of each group member is clearly visible and quantifiable to other group members. Given the public nature of students' practical performances, this would seem likely to be the case in PE lessons. Slavin (1983) goes on to suggest that in situations where the groups are evaluated on the basis of a single performance (i.e. the score in team games) it is possible for a single group member to do all, or most of the work. In such circumstances, the contributions of the lower achievers in the group may well be considered useless at best by the group, or at worse, the cause of group failure.

Slavin (1983) concluded that individual accountability is insufficient to increase student achievement and that group rewards are also needed. Without group rewards, there is little reason for group members to care about their group mates learning (Slavin, 1983).

Competitive sport is a significant aspect of current PE programmes in elementary and high school settings and, as such, competing in a team against other teams is a common experience for students in Cooperative Learning settings. Future research should, therefore, consider the different reward structures in PE lessons and the impact these have on the 'positive interdependence skills' and 'individual accountability' of the students. The different challenges that confront the PE teachers in these different scenarios and how they deal with them to foster a positive motivational climate would also be a revealing research avenue to pursue and one that would potentially further refine the TARGET structures in Cooperative Learning environments.

Grouping

The grouping structure of TARGET is the most obvious link to the Cooperative Learning model. Heterogeneous cooperative grouping arrangements are emphasised in both TARGET and Cooperative Learning and the benefits to students learning are well supported and positively promoted. According to Dyson and Casey (2012) in Cooperative Learning students work together in small, structured, heterogeneous groups to master subject matter. This is entirely consistent with the Grouping structure of TARGET and the Cooperative Learning model can be used to further inform and develop the TARGET framework. Johnson and Johnson (1999, p68) argue that the performance of any group is dependent upon its structure:

Seating people together and calling them a cooperative group does not make them one. Study groups, project groups, lab groups, home-rooms and reading groups are groups, but they are not necessarily cooperative. Even with the best intentions, teachers may be using traditional classroom learning groups rather than cooperative learning groups. To ensure that a group is cooperative, educators must understand the different ways cooperative learning may be used and the basic elements that need to be carefully structured within every cooperative group.

In PE, groups are used far more than in any other subject (Dyson & Casey, 2012), yet these are not often structured to be cooperative. For groups to be truly cooperative the following elements need to be in place (Dyson & Casey, 2012):

1. Clearly perceived positive interdependence;
2. Considerable 'face-face' interaction;
3. Clearly perceived 'individual accountability' and personal responsibility to achieve the group's goals;
4. Frequent use of relevant interpersonal and small-group skills;
5. Frequent and regular 'group processing' of current functioning to improve the group's future effectiveness.

If these cooperative elements are adopted within the grouping structure of TARGET, then it is more likely that a mastery learning climate will be fostered (Ames, 1992a). However, the Recognition and Rewards structure, covered in the previous subsection of this article cannot be neglected and may have a significant impact on the effectiveness of the cooperative Grouping structure. It is important to identify at this juncture that the TARGET structures are considered interdependent and do not

operate in isolation (Ames, 1992b). For example, if the inter-group Recognition structure is highly comparative, this may undermine the intended cooperative nature of the Grouping structure and the 'positive interdependence' and 'individual accountability' of the students (as already identified in the previous section on Recognition).

An aspect of the TARGET Grouping structure that may add some further consideration to the Cooperative Learning model, is the use of varied grouping arrangements. Ames (1992a) suggests regrouping students on a regular basis both within and between lessons but this is not necessarily promoted within the Cooperative Learning model. Indeed, such a grouping strategy could make it more challenging to build 'positive interdependence' and 'individual accountability' due to potentially difficult interpersonal relationships between different group members. The 'interpersonal and small-group skills' allow free and easy communication between group members (Dyson and Casey, 2012). According to Dyson (2001), these skills include listening to others, taking responsibility, giving and receiving feedback, shared decision making and encouraging each other. Such interactions are only possible when effective cooperation exists within groups. Regrouping students on a regular basis would make these interactions more challenging but potentially develop interpersonal skills more effectively as students would need to practice them with a wider group of people.

Evaluation

Evaluation involves the methods that are used to assess and monitor student learning and is one of the most salient features of the teaching environment (Epstein, 1988; Ames 1992b). Strategies such as peer evaluation and feedback are common within Cooperative Learning (Dyson & Casey, 2102) and also encouraged within a

mastery Evaluation structure. Ames (1992b) emphasised four important strategies for evaluation:

1. Evaluating students for individual progress, improvement and mastery;
2. Giving students opportunities to improve performance;
3. Varying the method of evaluation;
4. Making evaluation private.

Ames (1992b) also suggests that within a mastery climate students need to feel that it's okay to make mistakes; mistakes are a part of learning and not seen as failure. All of these principles and strategies can be equally applied to cooperative groups, except that the group progress and learning becomes the major focus rather than the individual. That said, however, if individuals within the group all improve and maximise their individual potential then the group performance will also improve. It is, therefore, in the interest of the group to foster a mastery climate and to focus on mastery evaluation of all group members.

Similar to the issues identified in the Recognition structure of TARGET, when Evaluation practices are normatively based (encourage inter-group competition) and public, they can have a deleterious effect on student motivation (Ames, 1992b). Evaluation systems that emphasise social comparison tend to lower student perceived competence when they don't compare favourably (Ames & Ames, 1984). Whilst successful cooperative groups can reduce self-devaluation of low achievers by overshadowing the effects of poor individual performance, group failure can lead to greater individual disparagement in low achievers (Ames & Ames, 1984). Further, Duetsch (1962) identified, that children in failing groups tended to blame other group members, an effect he described as 'blaming the bungler'. However, Tjosvold,

Johnson and Johnson (1981), found that as long as the low achieving member of a group is perceived as trying, he or she is not likely to receive negative interpersonal evaluation. Such moral situations should be carefully considered by PE teachers in devising evaluation strategies within Cooperative learning settings and offer future research opportunities.

Private evaluation, as advocated by Ames (1992a), is a particular challenge within Cooperative Learning, due to the group learning focus. It is possible to provide individual private feedback within Cooperative learning situations, but this is difficult to administer and may defeat the object of the group work. However, giving feedback privately to the whole group, without other groups listening to that feedback, is entirely possible and worthy of consideration in Cooperative Learning. This would make the evaluation and feedback more specific and relevant to individual groups and would seem to be consistent with the principles of differentiation, mastery learning and good practice in PE.

Time

The final TARGET structure is Time with an emphasis on allowing flexible time to learn and maximising learning time (Ames, 1992a). From an inclusive perspective, the key concept is to allow flexible learning time to accommodate the variations in the time needed for learning by individuals or groups with different prerequisite skills (Ames, 1992a). If this is neglected, teachers deny differences in learning rates and reduce the number of effective learners (Epstein, 1988).

In conclusion, the aim of this article was to identify the similarities between the Cooperative Learning model in PE (Dyson & Casey, 2012) and mastery TARGET structures (Ames, 1992a). It is anticipated that this article could be used to further

enrich the Cooperative Learning model and to open up new avenues of research that combine TARGET and Cooperative Learning. Consistent with Ames' (1992) and Standage et al (2005), this article argues that the success of the Cooperative Learning model in enhancing students learning and motivation could be further developed by combining it with the TARGET structures. In doing so, this article also suggests a number of future research opportunities for further enhancement of the Cooperative Learning model in PE.

Table 1. TARGET Structures

TARGET DESCRIPTION	Teaching Strategies
Task	<ul style="list-style-type: none"> ● Design tasks for variety, differentiation and inclusion ● Encourage athletes to set their own self- or group-referenced goals for improvement
Authority	<ul style="list-style-type: none"> ● Students involved in decision making and leadership roles
Recognition	<ul style="list-style-type: none"> ● Individual recognition & feedback on improvement and effort
Grouping	<ul style="list-style-type: none"> ● Mixed ability, co-operative groups
Evaluation	<ul style="list-style-type: none"> ● Individual progress based on improvement and mastery ● Opportunities to improve performance ● Varied methods of assessment for learning ● Private evaluation
Timing	<ul style="list-style-type: none"> ● Flexible time to complete tasks ● Promotion of maximum participation within lessons

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